APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER
MANCHO, RONNIE M

ART UNIT	PAPER NUMBER
3663	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/22/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

	Application No.	Applicant(s)
Office Action Summary	10/800,178	SHARPE ET AL.
	Examiner	Art Unit	
	Ronnie Mancho	3663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE **3** MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *14 December 2006*.

2a) ☒ This action is **FINAL**.   2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-9 and 11-32* is/are pending in the application.

    4a) Of the above claim(s) *9,11-32* is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-8* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All   b) ☐ Some * c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail. Date _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1.   Applicant's election with traverse of Group I (claims 1-8) in the reply filed on 12/14/06 is

acknowledged. The traversal is on the ground(s) that the claims have corresponding substantive

limitations and therefore should belong to the same group. This is not found persuasive because

the applicant is not arguing that the groups are not patentably distinct. The section 803.01 in

MPEP cited by the applicant does not prohibit restriction if the claims have corresponding

substantive limitations. Although the claims may have *some* limitations that are similar, the

claims are clearly patentably distinct and correspond to distinct groups as pointed out in the

restriction requirement.

The requirement is still deemed proper and is therefore made FINAL.

2.   Claims 9, 11-32 are withdrawn from further consideration pursuant to 37 CFR 1.142(b),

as being drawn to a nonelected invention, there being no allowable generic or linking claim.

Applicant timely traversed the restriction (election) requirement in the reply filed on 12/14/06.

Claim Rejections - 35 USC § 112

3.   The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making
> and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it
> pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode
> contemplated by the inventor of carrying out his invention.

4.   Claims 1-8 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with

the enablement requirement. The claim(s) contains subject matter which was not described in

the specification in such a way as to enable one skilled in the art to which it pertains, or with

which it is most nearly connected, to make and/or use the invention.

In amended claim 1, the applicant recites "computing.........updates to an ionospheric

model". How and in what manner are the updates computed ? Applicant does not teach one

skilled in the art how the updates are computed.

The rest of the claims are rejected for depending on a rejected base claim.

Claim Rejections - 35 USC § 102

5.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6.   Claims 1-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Lin

(US2001/0020216).

In the claims, "computing ....updates to an ionospheric model" will be interpreted as --

ionospheric model corrections are updated -- as taught in applicant's specification.

Regarding claim 1, Lin (abstract, figs. 5-11; pages 6-12 a) discloses (in a system for

navigating an object based on code and carrier-phase measurements obtained using signals on a

first frequency and signals on a second frequency from a plurality of satellites), a method for

continuing dual-frequency navigation during a time period in which signals from a respective

satellite on the first frequency are lost, the method comprising:

performing dual-frequency navigation (L1, L2; sec. 0146-0152) before the time period,

including computing smoothed code measurements (see Kalman filter, sec 152-155) and updates

(i.e. making corrections; sections 156-158) to an ionospheric model based on code and carrier-

phase measurements obtained using signals from the respective satellite on both the first and

second frequencies (L1, L2; sec. 0146-0152);

performing backup navigation during the time period (i.e. when L1 and/or L2 are not

available) by synthesizing a carrier-phase measurement on the first frequency from a carrier-

phase measurement on the second frequency and from the updates (i.e. corrections) to the

ionospheric model computed prior to the time period (sec. 0152); and

transitioning to dual-frequency navigation using signals from the respective satellite on

both the first and second frequencies in response to resumption of receiving signals from the

respective satellite on the first frequency.

Regarding claim 2, Lin (abstract, figs. 5-11; pages 6-12 a) discloses the method of claim

1 wherein computing the smoothed code measurements comprises:

smoothing (see Kalman filter, sec 152-155) a code measurement with a combination of

carrier-phase measurements, the combination having an ionospheric delay that matches an

ionospheric delay in the code measurement (sec. 156-157).

Regarding claim 3, Lin (abstract, figs. 5-11; pages 6-12 a) discloses the method of claim

1, wherein performing dual-frequency navigation further comprises:

obtaining a modeled ionospheric bias term computed using the ionospheric model;

computing a measured ionospheric bias term using the smoothed code measurements;

and

computing a correction to the modeled ionospheric bias term by taking a difference

between the measured and modeled ionospheric bias terms.

Regarding claim 4, Lin (abstract, figs. 5-11; pages 6-12 a) discloses the method of claim

3 wherein performing dual-frequency navigation further comprises:

obtaining a modeled ionospheric rate term computed using the ionospheric model;

computing a measured ionospheric rate term using differences of carier-phase

measurements between two measurement epochs; and

computing a correction to the modeled ionospheric rate term by taking a difference

between the measured and modeled ionospheric rate terms.

Regarding claim 5, Lin (abstract, figs. 5-11; pages 6-12 a) discloses the method of claim

1 wherein performing backup navigation further comprises:

obtaining a modeled ionospheric bias term computed using the ionospheric model;

computing an estimated ionospheric bias term using the modeled ionospheric bias term

and the updates (i.e. making corrections) to the ionospheric model computed before the time

period;

computing the synthesized carrier-phase measurement on the first frequency using the

estimated ionospheric bias term and the carrier-phase measurement on the second frequency.

Regarding claim 6, Lin (abstract, figs. 5-11; pages 6-12 a) discloses the method of claim

1 wherein performing backup navigation further comprises:

computing estimated smoothed code measurements on both the first and second

frequencies using the synthesized carrier-phase measurement on the first frequency, the carrier-

phase measurement on the second frequency, and computation results obtained based on signals

from the respective satellite on both the first and second frequencies received at the object before

the time period.

Regarding claim 7, Lin (abstract, figs. 5-11; pages 6-12 a) discloses the method of claim

6 wherein performing backup navigation further comprises computing further updates (i.e.

making further corrections) to the ionospheric model based on the updates (i.e. previous

corrections) to the ionospheric model computed prior to the time perion, the estimated smoothed

code measurement on the second frequency, and a code measurement obtained using signals on

the second frequency.

Regarding claim 8, Lin (abstract, figs. 5-11; pages 6-12 a) discloses the method of claim

1 wherein transitioning to dual-frequency navigation comprises:

determining whether the time period exceeds a predetermined threshold in response to a

determination that the time period does not exceed a predetermined threshold, determining

whether a difference between a measured carrier-phase range and a synthesized carrier-phase

range corresponding to the first frequency is sufficiently close to an integer number of the

wavelength corresponding to the first frequency; and

in response to a determination that the difference between the measured carrier-phase

range and the synthesized carrier-phase range is sufficiently close to an integer number of the

wavelength, adjusting an estimated ambiguity value associated with the measured carrier-phase

measurement or adjusting an estimated offset between a code measurement on the first frequency

and a carrier-phase combination having an ionospheric delay that matches the ionosphelic delay

in the code measurement.

Response to Arguments

7.   Applicant's arguments filed 9-18-06 have been fully considered but they are not

persuasive.

The applicant is argues that the prior art does not disclose "computing updates to an

ionospheric model". It is noted that applicants disclosure recites, "ionospheric model corrections

are updated". There is no support for "computing....... updates to an ionospheric model". Even

if the limitation was disclosed, which the examiner is not conceding, applicant does not teach

one skilled in the art how the updates are computed.

The examiner further notes that the applicant admits, Lin disclose an ionospheric model.

As disclosed by Lin, the ionospheric model is corrected when there are cycle slips using single or

dual frequencies (L1, L2). Lin (sections 156-158) disclose that when there is an ambiguity, the

ambiguity resolution block 504 rectifies the ambiguities. As indicated by Lin, the ionospheric

model is continually corrected during cycle slips by the ambiguity resolution block 504. The

examiner notes that the applicant skipped these sections in Lin without making mention of them.

Applicant insists that Lin "makes absolutely no distinction, with respect to operation of

the ionospheric model 501 or ambiguity resolution block 504 between single and dual modes of

operation". Lin discloses " making corrections, updates, to the ionospheric model". The

examiner disagrees. Lin (sections 0156) teaches discloses "making corrections, updates, to the

ionospheric model". That is Lin (sec. 0156) teaches that the ionospheric model computes delays

due to ionospheric propagation of GPS signals. That is the GPS signals and the conditions of the

ionosphere and troposphere at a given moment are fed into the ionospheric model to compute the

and compensate for the errors, delays, etc.. Therefore, the signals fed into the ionospheric model

constitutes an update of the ionspheric model as taught by Lin. Therefore, the prior art
anticipates the limitations in the claims.

Applicant argues that Lin does not discuss using it ionopheric model during time periods
when no ambiguity exists. Lin disclose using the ionospheric model all the time. Lin does not
prohibit using the ionospheric model during certain times. Whether there is ambiguity or not,
Lin uses its ionospheric model.at all times.

It is therefore, believed that the rejections are proper and stand.

Conclusion

8.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time
policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE
MONTHS from the mailing date of this action. In the event a first reply is filed within TWO
MONTHS of the mailing date of this final action and the advisory action is not mailed until after
the end of the THREE-MONTH shortened statutory period, then the shortened statutory period
will expire on the date the advisory action is mailed, and any extension fee pursuant to 37
CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,
however, will the statutory period for reply expire later than SIX MONTHS from the mailing
date of this final action.

Communication

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Ronnie Mancho whose telephone number is 571-272-6984. The

examiner can normally be reached on Mon-Thurs: 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Jack Keith can be reached on 571-272-6878. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would

like assistance from a USPTO Customer Service Representative or access to the automated

information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Ronnie   Mancho
Examiner
Art Unit 3663

3/13/07

JACK KEITH
SUPERVISORY PATENT EXAMINER